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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,168	07/12/2005	Jong-Yun Kim	11281-076	8431
Jones Day 222 East 41 Street New York, NY 10017			EXAMINER HELM, CARALYNNE E	
			ART UNIT 1615	PAPER NUMBER
			MAIL DATE 04/29/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,168

Applicant(s)

KIM ET AL.

Examiner

CARALYNNE HELM

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 1-4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF 298)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Note to Applicant: References to paragraphs in non-patent literature refers to full paragraphs (e.g. 'page 1 column 1 paragraph 1' refers to the first full paragraph on page 1 in column 1 of the reference)

Claim Objections

Claims 1-4 are objected to because of the following informalities: Each claim contains words that stop abruptly on one line and continue on the next line. In addition, no hyphen is present in these words to indicate that the word is continuing on the next line. Appropriate correction is required.

Specification

The disclosure is objected to because of the following informalities: The specification contains words that stop abruptly on one line and continue on the next line through its entirety. In addition, no hyphen is present in these words to indicate that the word is continuing on the next line. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon et al. (Advanced Materials 2002 14:19-21) in view of Robau-Sanchez et al. (Carbon 2003 41:693-698), Hong et al. (KR1999-0080808), and Kobayashi et al. (U.S. Patent No. 3,891,574).

Yoon et al. teach a hollow porous carbon capsule (ball) that has a porous shell with a bimodal distribution of pore sizes (see page 20 column 2 paragraph 2; instant claim 1). Further, Yoon et al. teach that the core of the ball is 500 nm while the shell thickness is 90 nm (see figure 3; instant claim 4). Yoon et al. also teach that the ball structures are suitable for use as catalysts and adsorbents (see page 20 column 2 paragraph 2; instant claim 1). Although Yoon et al. do teach different pore sizes that are controllable (see page 20 column 2 paragraph 2),

they do not teach that these pores are arranged in discrete separate layers, nor is it taught that the shells of the balls are impregnated with a particular deodorizing material.

Robau-Sachez et al. teach that activated carbon is known to have layers of pores that vary in size based upon the processing conditions and the radial position in a given particle (see abstract and figure 1; instant claim 1). The proportion of micropores versus mesopores is different in an external layer as opposed to an internal layer (see figure 1; instant claim). Thus since Yoon et al. teach the utility of their carbon balls as being similar to that of activated carbon (e.g. as catalysts and adsorbents) as well as a means to control size parameters in the hollow carbon balls, it would have been obvious to one of ordinary skill in that art at the time the invention was made to mimic a known configuration of activated carbon (layers of differing pore size). Further, Kobayashi et al. teach the benefits of a hollow core in a carbon adsorbent (see abstract and table column). Thus it would have been obvious to make a multilayered hollow carbon ball such that the layers had different pore sizes. In view of the teachings of Yoon, the shell could be produced in a fashion such that multiple layers remained within the claimed thickness range (e.g. two layers 90 nm in thickness).

Hong et al. teach carbon impregnated with alkali metal salts, including KI, which serves to increase the adsorbency and destruction of odorants (see abstract and page 3 paragraph 4). In addition, Hong et al. teach that the impregnated carbon contains approximately 15% of the deodorizing material (see page 9 paragraph 2; instant claim 3). Yoon et al. taught that the hollow carbon balls of their invention were suitable for use as adsorbents, therefore in view of the teachings of Hong et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to impregnate the carbon balls of the modified reference of Yoon et al. with the particular deodorizers taught by Hong et al. so as to increase their adsorption and

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odor reducing ability. Therefore claims 1 and 3-4 are obvious over Yoon et al. in view of Robau-Sanchez et al., Kobayashi et al, and Hong et al.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon et al. in view of Robau-Sanchez et al., Kobayashi et al, and Hong et al. as applied to claims 1 and 3-4 above, and further in view of Karapasha (U.S. Patent No. 5,407,442).

Yoon et al. in view of Robau-Sanchez et al., Kobayashi et al, and Hong et al. make obvious multi-layered hollow carbon balls where the layers have different pore sizes and the shell is impregnated with a deodorizing material. This modified reference does not specifically teach the combination of a transition metal with an alkali metal salt at the deodorizing material. Hong et al. teach that combinations of odor destroying chemicals can be used in their invention. Karapasha teaches that utility of copper ions on a substrate for their known odor controlling capabilities (see column 18 lines 52-54, 56, and 57-58; instant claim 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use copper in combination with KI as the deodorizing material since both are known for this purpose. It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (See MPEP 2144.06). Therefore, claims 1 and 2 are obvious over Yoon et al. in view of Robau-Sanchez et al., Kobayashi et al, Hong et al., and Karapasha.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

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improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 28-36 of copending Application No. 10/684352 in view of Robau-Sanchez et al. Both applications teach a hollow carbon ball with a porous shell, having the same core and layer dimensions, and impregnated with a deodorizing agent selected from the same group of metal compositions. Application 10/684352 does not teach the presence of multiple porous layers with differing pore sizes. Robau-Sanchez teaches that layers of differing pore size are known in porous carbon spheres. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of application 10/684352 to contain multiple layers with differing pore sizes. Therefore claims 1-4 are obvious over claims 28-36 of application 10/684352 in view of Robau-Sanchez.

This is a provisional obviousness-type double patenting rejection.

Conclusion

No claim is allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARALYNNE HELM whose telephone number is (571)270-3506. The examiner can normally be reached on Monday through Thursday 8-5 (EDT).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MP WOODWARD/
Supervisory Patent Examiner, Art Unit 1615

/Caralynne Helm/
Examiner, Art Unit 1615